PATENTS • DESIGNS • COPYRIGHT • TRADE MARKS
The Patent Office

INVESTOR IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.

Signed R. Mahoney

Dated 11 September 2003

Patents Form 1/77

Patents Act 1977
(Rule 16)

The Patent Office

1/77

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
Newport
South Wales
NP9 1RH

1. Your reference

MJN/CSM/67904

19SEP02 E749373-1 D01914
00-0221704.0

2. Patent application number
(The Patent Office will fill in this part)

0221704.0

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

Yuk Yiu Wong
91 Wick Road
Brislington
Bristol BS4 4HE

Patents ADP number *(if you know it)*

8467300001

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

Water Cooled Cooking Range

5. Name of your agent *(if you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

PAGE HARGRAVE
Southgate, Whitefriars
Lewins Mead
BRISTOL BS1 2NT

Patents ADP number *(if you know it)*

05996483001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day / month / year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
See note (d))

N

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form	-
Description	5
Claim *(s)*	3 DMC
Abstract	1
Drawing *(s)*	1 + 1

10. If you are also filing any of the following, state how many against each item.

Priority documents	-
Translations of priority documents	-
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	-
Request for preliminary examination and search *(Patents Form 9/77)*	-
Request for substantive examination *(Patents Form 10/77)*	-
Any other documents *(please specify)*	-

11. I/We request the grant of a patent on the basis of this application.

Signature PAGE HARGRAVE Date **16/09/02**

12. Name and daytime telephone number of person to contact in the United Kingdom **Craig Macpherson** **0117 927 6634**

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.

b) Write your answers in capital letters using black ink or you may type them.

c) If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.

d) If you have answered 'Yes' Patents Form 7/77 will need to be filed.

e) Once you have filled in the form you must remember to sign and date it.

f) For details of the fee and ways to pay please contact the Patent Office.

Water Cooled Cooking Range

The present invention relates to a water cooled cooking range having means for separating hydrophobic waste material from water.

Traditional water cooled cooking ranges have water running continuously onto the cooking surface area which helps to dispel the heat and wash away any food and grease spillage down the drains. Unfortunately, grease spillage, which can rarely be avoided, can cause drains to become blocked. This is not good for the premises or the environment and in addition, new health and safety regulations have made it an offence to pour grease or fat into the soil drain.

The present invention seeks to alleviate or reduce the above limitations.

According to the present invention there is provided a water cooled cooking range comprising:

a cooking surface area;

a water supply arranged to provide a constant supply of water onto said cooking surface area;

an exit for the water from said cooking surface area; and

a chamber area located lower than said cooking surface area to receive the water from said cooking surface area exit, the chamber having means for separating hydrophobic waste material from water.

Preferably the means for separating hydrophobic waste material comprises the interior of the chamber being divided into two regions by a dividing wall which extends from a first point above but relatively close to the bottom surface of the chamber to a second point on a wall of the chamber, the exit for water from the cooking surface area being provided in the first region and a waste outlet being provided in the second region above the level of the bottom of the dividing wall, the two regions being in communication with one another along the bottom surface.

Having the dividing wall extend to a point just above the bottom surface improves the separation capabilities of the chamber. The amount of hydrophobic waste material which enters the second region is limited since initially relatively clean water will normally enter the chamber first and

will fill the bottom layer of the second region up to the bottom of the dividing wall. Any hydrophobic material which subsequently enters the chamber will form a layer on top of the water in the first region.

Preferably, the means for separating the hydrophobic waste material from the water further comprises a collection tray located in the first region above the level of the waste outlet. The collection tray may suitably be formed from a portion of the dividing wall. The means for separating the hydrophobic waste material from the water may suitably further comprise a removable cartridge filter adapted to fit the collection tray. More preferably, the removable cartridge filter is provided with handles which facilitate removal from the collection tray.

Whilst the chamber may be located to the side or behind the cooking range it is preferred that the chamber is located beneath the cooking surface area.

Advantageously, a waste filter tray may be provided in the first region beneath the drain plug to filter out solid waste particles from the mixture of water and hydrophobic waste material as it enters the chamber.

Preferably, a drain valve is provided in the bottom surface of the first region of the chamber. This enables the chamber to be completely drained when the cooking range is not in use.

The dividing wall may preferably be inclined at an angle such that the cross section of the second region of the chamber is wider at the top than at the bottom. Most preferably the dividing wall is inclined at an angle of approximately 45°.

It is preferred that the water cooled cooking range is a gas cooking range and even more preferred that it is a water cooled gas wok cooking range.

Whilst it is possible that the chamber area could be a separate component it is preferred that it is integral to the cooking range.

For a better understanding of the present invention reference will now be made to the

ompanying drawing showing, solely by way of example, an embodiment of the present invention in which:

Fig. 1 shows a side sectional view of a water cooled gas wok cooking range.

The water cooled gas wok cooking range 2 is formed from heavy gauge high-grade stainless steel with highly polished surfaces for easy cleaning. The range 2 has a cooking surface area 4 with a plurality of raised cooking rings (not shown) and a drain with a plug 6. The cooking surface area 4 and cooking rings are formed by being pressed out on a 200 ton CNC hydronic power press, which produces the required shaped structure without needing welded joints. The cooking range 2 is also provided with a water supply (not shown) which provides a constant supply of cold water for the cooking surface area 4 around the rings whilst the cooking range 2 is in use. For wok cooking in particular, it is necessary to have the cooking rings at high temperatures. In order to dissipate some of the heat generated the water cooled cooking range 2 has water running continuously onto the cooking surface area 4 surrounding the cooking rings. Not only does this help to dispel the heat but it also helps to wash away any food and grease spilt onto the cooking surface area 4.

The cooking range 2 is provided with a front drain gully 8 which receives an overflow of water from the cooking surface area 4. The front drain gully 8 directs the overflow into a chamber 10 located beneath the cooking surface area 4. The cooking surface area 4 is also in communication with the chamber 10 via the drain when the plug 6 is removed to enable complete draining of water from the cooking surface area 4 after use.

The interior of the chamber 10 is divided into two regions 12, 14 by a dividing wall 16. The dividing wall 16 is also made from heavy gauge high-grade stainless steel and extends from a first position 18 on the back wall of the chamber 10 below the top surface 17 to a second position 20 just above the bottom surface 21 of the chamber 10. In addition to dividing the chamber 10 into two regions 12,14 the dividing wall 16 also forms a collection tray 22 in the first region 12. The collection tray 22 is in the form of a rectangular trough and in use a removable cartridge filter (not shown) will be placed in the tray 22. The removable cartridge filter would have a handle to facilitate its removal from the tray 22 in order to dispose of the hydrophobic waste

material which has been collected.

A first portion of the dividing wall 16 is inclined upwards at an angle of approximately 45° from the bottom back corner of the chamber 10. A second portion of the dividing wall 16 incorporates the collection tray 22 and is physically attached to the chamber 10 at a point just below the top surface 17. This configuration means that the cross sectional area of the second region 14 is smaller at the bottom than it is at the top. Consequently, it only takes a small amount of water to fill the bottom of the second region 14.

The first region 12 and the second region 14 are in communication with one another at a position adjacent the bottom surface 21. The drain plug 6 is located in the top surface 17 of the first region 12 of the chamber 10 and a waste outlet 26 is provided in the second region 14, located on the side wall 25 at a point intermediate the first 18 and second 20 positions of the dividing wall 16. A portion of the waste outlet 26 is lower than the collection tray 22. The area of the waste outlet 26 which is lower than the collection tray 22 must be sufficiently large such that the water flow out of the second region 14 of the chamber 10 is sufficient to ensure that the water within the chamber 10 does not overflow into the collection tray 22. The portion of the waste outlet 26 which is below the level of the collection tray 22 must therefore be capable of permitting flow equal to that of the flow from the water supply, in normal use, such that equilibrium is attained. The waste outlet 26 is also provided with a valve 28.

A waste filter tray 30 is provided in the first region 12 directly beneath the drain plug 6. The waste filter tray 30 is made of the same stainless steel as the cooking range 2 and has apertures to allow the flow of water into the chamber 10. The waste filter tray 30 has a filter 31 and is provided to filter out solid waste particles from the water/hydrophobic waste material as it enters the chamber 10.

A main drain valve 32 is provided in the bottom surface 21 of the first region 12. This enables the chamber 10 to be completely emptied of water when not in use, thus allowing the chamber 10 to be thoroughly cleaned.

When the cooking range 2 is in use there is a constant flow of water onto the cooking surface

4 around the cooking rings. This water helps to dissipate some of the heat generated in the cooking rings and also to wash away any food debris grease and, when a certain level is reached, the water overflows the cooking surface area into the front drain gully 8. The water (and any hydrophobic waste material, such as cooking oil, which has spilt onto the cooking surface area 4) then flows along the front drain gully 8 and into the chamber 10 through the waste filter tray 30. This filters out any solid particles, such as food debris, which may have been spilt on the cooking surface area 4.

The water/hydrophobic waste material enters the chamber 10 in the first region 12. Since the water flows constantly through the system the first water to enter the chamber will be largely free of any contaminants since little cooking will have been done. The water will flow into the second region 14 along the bottom of the chamber 10 and the water level will begin to rise. As cooking commences any hydrophobic material, such as cooking oil, will pass through the system and form a layer on top of the water layer. Since the gap between the bottom of the dividing wall 16 and the bottom of the chamber 10 is relatively small substantially none of the hydrophobic material will enter the second region 14. When the water in the second region 14 reaches the level of the waste outlet 26 it will flow out of the chamber 10 and into the soil drain. Equilibrium will be established between the flow of water/hydrophobic material into the chamber and the flow of water out.

The layer of hydrophobic waste material on top of the water layer will gradually increase as cooking proceeds. When it is desired to remove the hydrophobic waste material from the range 2 the drain valve 28 on the waste outlet 26 is closed. This stops the flow of water out of the chamber 10. Consequently the level of water/hydrophobic waste material inside the chamber 10 will begin to rise above the equilibrium level. Eventually, the level of the hydrophobic waste material will become so great that it will overflow into the collection tray 22. When all the hydrophobic waste material has overflown into the collection tray 22 the drain valve 28 is reopened and the equilibrium will be re-established. This operation can be carried out whilst cooking continues. When cooking has finished the drain plug 6 on the cooking surface 4 can be removed in order to drain the cooking surface area 4. The cooking surface 4 can then be washed down with water and the separation process repeated.

CLAIMS

1. A water cooled cooking range comprising:

a cooking surface area;

a water supply arranged to provide a constant supply of water onto said cooking surface area;

an exit for the water from said cooking surface area; and

a chamber area located lower than said cooking surface area to receive the water from said cooking surface area exit, the chamber having means for separating hydrophobic waste material from water.

2. A water cooled cooking range according to claim 1, wherein the means for separating the hydrophobic waste material from water comprises the interior of the chamber being divided into two regions by a dividing wall which extends from a first point above but relatively close to the bottom surface of the chamber to a second point on a wall of the chamber, the exit for water from the cooking surface area being provided in the first region and a waste outlet being provided in the second region above the level of the bottom of the dividing wall, the two regions being in communication with one another along the bottom surface.

3. A water cooled cooking range according to claim 2, wherein the waste outlet has a valve.

4. A water cooled cooking range according to claim 3, wherein the means for separating the hydrophobic waste material from water further comprises a collection tray located in the first region above the level of the waste outlet.

5. A water cooled cooking range according to claim 4, wherein the collection tray is formed from a portion of the dividing wall.

6. A water cooled cooking range according to claim 4 or claim 5, wherein the means for separating the hydrophobic waste material from the water further comprises a removable cartridge filter adapted to fit the collection tray.

A water cooled cooking range according to claim 6, wherein the removable cartridge filter is provided with a handle.

8. A water cooled cooking range according to any preceding claim, wherein the chamber is located beneath the cooking surface area.

9. A water cooled cooking range according to any preceding claim, wherein a waste filter tray is provided in the first region beneath the drain plug to filter out solid waste particles from the mixture of water and hydrophobic waste material as it enters the chamber.

10. A water cooled cooking range according to any preceding claim, wherein a drain valve is provided in the bottom surface of the first region of the chamber.

11. A water cooled cooking range according to any one of claims 2 - 10, wherein the dividing wall is inclined at an angle such that cross section of the second region is wider at the top than at the bottom.

12. A water cooled cooking range according to any preceding claim, wherein the chamber area is integral with the cooking range.

13. A method of separating hydrophobic waste material from water in a water cooled cooking range according to any preceding claim comprising the steps of:

i) closing the valve on the waste outlet;

ii) maintaining the flow of water onto the cooking surface;

iii) monitoring the level of water/hydrophobic waste material in the chamber until the hydrophobic waste material overflows into the collection tray.

iv) re-opening the valve on the outlet; and

v) removing the hydrophobic waste material.

14. A method according to claim 12 further comprising the step of removing the cooking surface drain plug.

15. A water cooled cooking range substantially as hereinbefore described with reference to the accompanying drawing.

16. A method of separating hydrophobic material from water in a water cooled cooking range substantially as hereinbefore described with reference to the accompanying drawing.

ABSTRACT

A water cooled cooking range (2) comprising a cooking surface area (4), a water supply arranged to provide a constant supply of water onto said cooking surface area (4), an exit (8) for the water from said cooking surface area (4) and a chamber area (10), located lower than said cooking surface area (4), to receive the water from said cooking surface area exit (8), the chamber (10) having means for separating hydrophobic waste material from water.

(Fig. 1)

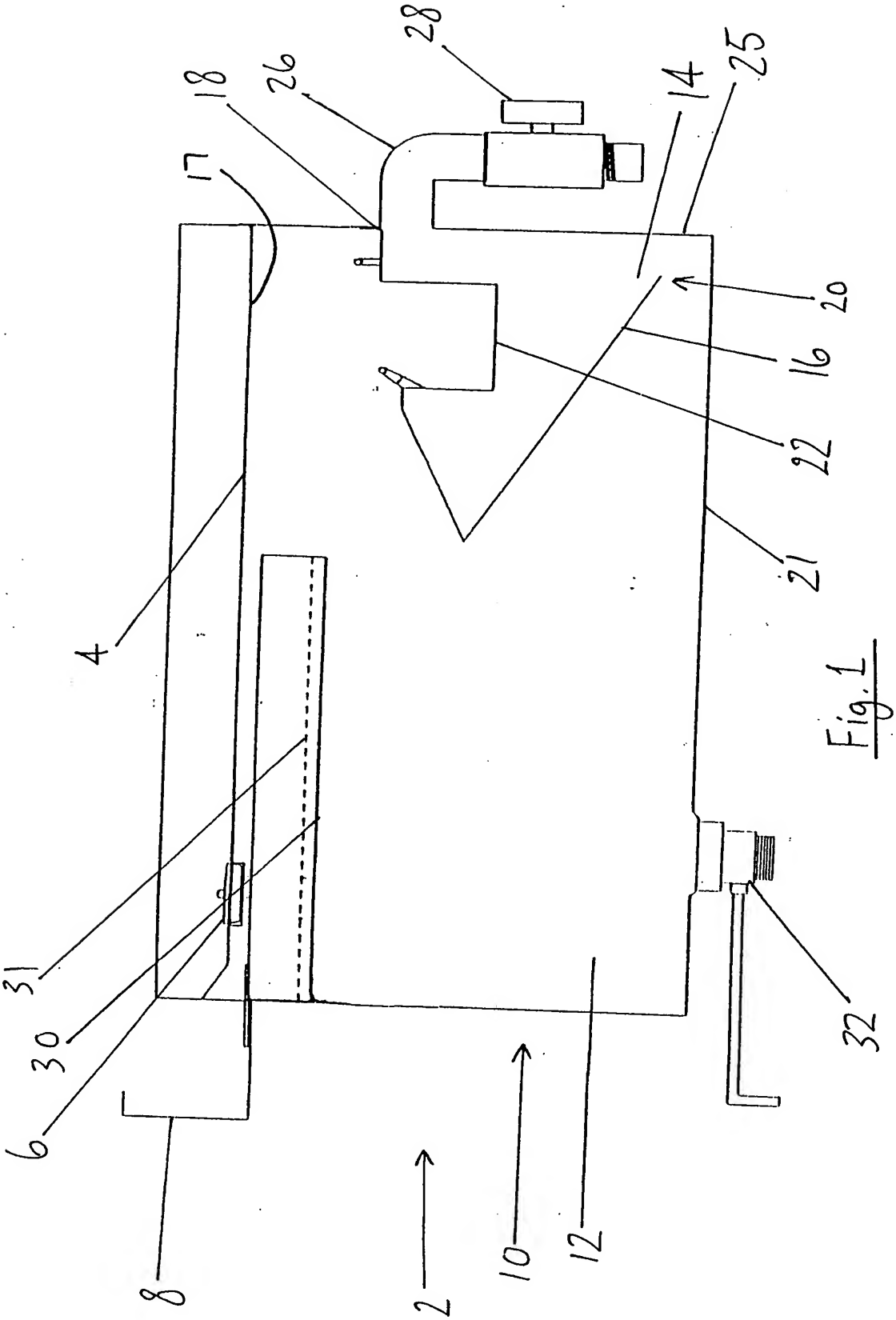

Fig. 1